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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,209	09/25/2002	Larry L. Longden	73591	8169
35070	7590	04/05/2006	EXAMINER	
ANATOLY S. WEISER 12526 HIGH BLUFF DRIVE SUITE 300 SAN DIEGO, CA 92130			FARAHANI, DANA	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/065,209

Applicant(s)

LONGDEN ET AL.

Examiner

Dana Farahani

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 31 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3,6-10 and 19-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,6-10 and 19-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/25/02, 12/2/02, 5-19-04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. Figure 1 is objected to as failing to comply with 37 CFR 1.84(p)(5) because it does not include the following reference signs: the space rings are pointed to, but not numbered in the figure nor referred to in the specification. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an

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international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

3. Claims 1, 6, 7 and 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Strobel et al., hereinafter Strobel (US Patent 6,720,493).

Regarding claims 1, 6, and 28, Strobel discloses in figure 7B, a radiation shielding device comprising:

- a die of an electronic circuit device, labeled as same in the figure;
  - an x-ray shielding tub, hereinafter tub, shown as the attach slug, comprising a bottom portion and sidewalls extending from the bottom portion, the die being disposed on the bottom portion between the sidewalls, as can be seen in the figure;
  - a base, the immediate layer beneath the tub, coupled to the bottom portion of the x-ray shielding tub opposite the die; and
  - a radiation shielding high-Z lid, shown as the high z material lid, coupled to the base;
- wherein
- the radiation shielding lid and the x-ray shielding tub are positioned to shield the die from x-rays from every angle; and
  - the radiation shielding lid is not in direct contact with the x-ray shielding tub so that the radiation shielding lid and the tub do not completely enclose the die.

Regarding claim 7, the lid comprises a high-Z and a low-Z material (see col. 8, line 13).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3, 8, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Strobel.

Regarding claim 3, Strobel substantially discloses the claimed invention, as discussed above, except for expressly stating that the thickness of the lid is greater than the thickness of the tub. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the thickness of the lid larger than that of the tub, in order to be able to use the device in an environment that has more radiation directed toward the chip from the top portion of the device.

Regarding claim 8, Strobel does not expressly show in the embodiment of figure 7B that a spacing ring is coupled to the lid. Strobel discloses that lid 470 of figure 4A-4B, is connected to base 410 using solder or epoxy technique (see col 7, lines 55-60) which includes using epoxy adhesives to seal the two together. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to adhere the lid and the base of the embodiment of figure 7B by an intermediate material (i.e. spacing ring) to seal the two layers together.

Regarding claim 9, the spacing ring comprises a high-Z material, e.g., Au-Sn solder (see col. 7, line 58).

Regarding claim 10, Strobel discloses the limitations in the claim, except for expressly stating the spacing ring comprises low-Z material. It would have been obvious to one of ordinary

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skill in the art at the time of the invention to make the spacing ring from a low-Z material, since it would have been cheaper compared to the above-mentioned high-Z material.

6. Claims 19-27 and 29-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA ) in view of Strobel.

Regarding claims 19-20, 24-26, 29, and 30, AAPA discloses in figure 1, a base 110 comprising a first surface and a second surface opposite the first surface;

first and second circuit dies 106;

a radiation shielding top coupled to the base;

an ionized radiation shielding bottom coupled to the base; and

radiation shielding top and the radiation shielding bottom 104 and 102.

AAPA does not disclose tubs wherein the chips are located in the tubs, and that the shielding tub is for x-ray radiation.

Strobel discloses a tub wherein a chip can be located thereat, as discussed above, and also a lid, which prevents x-ray contamination. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place the chips of the device of the prior art in tubs in order to prevent radiation from reaching the chips from any angle.

Regarding claims 21-23, and 33, AAPA discloses space rings coupled to the radiation shielding bottom 102, but not the radiation shielding top.

Strobel discloses high-Z space rings between the lid and the base, as discussed above, and as to why one of ordinary skill in the art would want to replace those materials with low-Z materials, also discussed above. Therefore, it would have been obvious to one of ordinary skill in

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the art at the time of the invention to adhere the top and the base of the AAPA by space rings to adhere the two layers together hermetically.

Regarding claims 27, 31, and 32, AAPA in view of Strobel renders obvious the claimed invention, as discussed above, except for expressly stating that the thickness of the top and the bottom shields are greater than the thickness of the tubs, i.e., the top/bottom has more shielding function. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the thickness of the top/bottom shields larger than that of the tubs, in order to be able to use the device in an environment that has more radiation directed toward the chip from the top/bottom portion of the device.

#### ***Response to Arguments***

7. Applicant's arguments with respect to the previously rejected claims have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

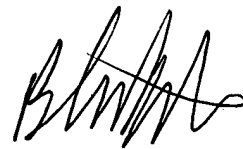
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information

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regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Farahani



**B. WILLIAM BAUMEISTER**  
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